THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

What is claimed is:

1. (Previously Presented) A system comprising:

a first robotic arm assembly for capturing and releasing a semiconductor wafer, the first robotic arm having at least two degrees of freedom;

a second robotic arm for capturing and releasing an interleaf, the second robotic arm having first and second ends and at least two degrees of freedom;

an end effector attached to the second end of the second robotic arm, the end effector configured to apply positive pressure to a surface of the interleaf facing the end effector for capture and release thereof and having a sensor to detect a proximity and engagement of the interleaf with the end effector, the sensor for determining a reduction in said positive pressure; and

a controller for actuation of the first and second robotic arms, the first and second robotic arms operating substantially simultaneously.

2. (Previously presented) The system according to claim 1 wherein the second robotic arm comprises:

a transfer arm having a first end and a second end, the arm being mounted to a second arm base; and

a counterweight attached to the first end of the transfer arm.

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Previously Presented) The system according to claim 1 wherein the sensor uses differential pressure, reflectance, imaging, capacitance, or inductance to detect proximity and engagement of the interleaf.

7. (Previously Presented)The system according to claim 1 further comprising a detection sensor to detect the material properties of the interleaf.

8. (Previously Presented) The system according to claim 7 wherein the detection sensor uses differential pressure, reflectance, imaging, capacitance, or inducting to detect the material properties of the interleaf.

9. (Previously Presented) The system according to claim 1 wherein the end effector arm further comprises electrodes to provide an electrostatic charge for capturing the interleaf.

10. (Original) The system according to claim 2 wherein the end effector is slidably disposed in a substantially vertical orientation at the second end of the transfer arm.

11. (Original) The system according to claim 10 wherein the end effector is configured to vertically actuate independently of the base.

12. (Original) The system according to claim 1 wherein at least one of the robotic arms is pneumatically actuated.

13. (Original) The system according to claim 1 wherein at least on of the robotic arms is actuated with electric servo motors.

14. (Previously Presented) The system according to claim 1 comprising an interleaf cassette holder including a pneumatic separator for separation of the interleafs, wherein the pneumatic separator co-acts with the end effector to capture the interleaf.

15. (Previously Presented) An assembly comprising:

a transfer arm having a first and a second end, the arm being mounted to a second arm base;

a counterweight attached to the first end of the transfer arm;

an end effector attached to a second end of the transfer arm, the end effector configured to apply positive pressure to a surface of the substrate facing the end effector; and

a pneumatic separator for separation of the interleafs, wherein the pneumatic separator is actuated in sequence with the end effector to facilitate capturing of an interleaf.

16. (Cancelled)

17. (Previously Presented) An assembly according to claim 15 further comprising a detection sensor to detect the material properties of the substrate when coupled to the end effector.

18. (Withdrawn) A method comprising:

providing a processing system having first and second robotic arms, the first robotic arm having a first end effector for capture and release of a semiconductor wafer, the second robotic arm having a second end effector for the capture and release of an interleaf sheet;

positioning the second robotic arm such that the second end effector is proximate to interleaf sheets;

applying a positive pressure through the second end effector to the interleaf sheets to separate an upper-most interleaf sheet from remaining sheets;

applying a negative pressure through the second end effector to retain the upper-most interleaf sheet against the second end effector; and

transporting the upper-most interleaf sheet from a first location to a second location; and

releasing the upper-most interleaf sheet from the second end effector.

19. (Withdrawn) The method according to claim 18 wherein the interleaf sheet is released into a enclosure and further comprising positioning the first robotic arm for capturing the semiconductor wafer from a first location and releasing the semiconductor wafer to a second location within a wafer shipper before each release of the upper-most interleaf sheet from the second end effector.

20. (Withdrawn) The method according to claim 19 further comprising capturing the semiconductor wafer by applying negative pressure through the first end effector and releasing the wafer by applying ambient pressure through the first end effector.

21. (Withdrawn) The method according to claim 18 further comprising reading a wafer ID for complete wafer tracking from the first location to the second location.

22. (Withdrawn) The method according to claim 18 further comprising storing and sending data for label printing of the semiconductor wafer with a label printer.

23. (Withdrawn) The method according to claim 18 further comprising inspecting the semiconductor wafer for defects such as edge damage.

24. (Withdrawn) The method according to claim 18 further comprising sorting the semiconductor wafers into a plurality of second locations.

25. (Previously presented) The system according to claim 2 wherein the end effector is configured to apply variable pressure forces to capture and release the interleaf.

26. (Previously Presented) The system according to claim 1 wherein the end effector is configured to sequentially apply negative and positive pressures to capture and release the interleaf.

27. (Previously Presented) The assembly according to claim 15 wherein the end effector is configured to sequentially apply positive and negative pressures to the substrate.